PATENT ABSTRACTS OF JAPAN

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(71)Applicant : NEC CORP

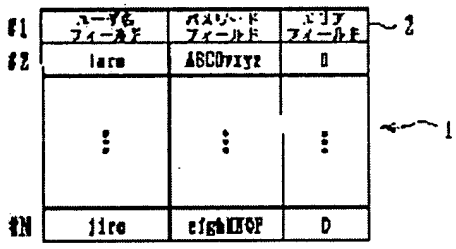
(72)Inventor : FUKUDA TETSUYA

(54) METHOD AND SYSTEM FOR AUTHENTICATED DATA BASE MANAGEMENT

(57)Abstract:

PROBLEM TO BE SOLVED: To improve maintainance of an authenticated data base by constituting the authenticated data base with authenticated data of all users in all authentication management areas.

SOLUTION: The authenticated data base 1 consists of N records 2, which each consist of a user name field where a user name as a user identifier is written, a password field where a password as a password code is written, and an area field. One record is prepared for each user and user names set uniquely by the users are written in the user name files of the respective records. When a user accesses one of the authentication management areas, a user who has succeeded in authentication by accessing the authentication management area before this access is retrieved preferentially from the authentication data base and matched against the current user to perform authentication.



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CLAIMS

Claim(s)]
Claim 1] In the network which the authentication database about all users is installed in each authentication management area, and attests a user for every authentication management area while being divided into two or more authentication management area If a user accesses to the authentication management area of one among said authentication management area The user who accessed said authentication management area of 1 before this access, and succeeded in authentication is preferentially searched out of said authentication database. The authentication database management approach characterized by attesting by collating this searched user and said user who accessed.
Claim 2] The authentication database-management approach which will be characterized by to attest by searching preferentially the user who accessed said authentication management area of 1 by predetermined time or before from his access, and succeeded in authentication out of said authentication database, and collating this searched user and said user who accessed in claim 1 if a user accesses to the authentication management area of one among said authentication management area.
Claim 3] In the network which the authentication database about all users is installed in each authentication management area, and attests a user for every authentication management area while being divided into two or more authentication management area The field where the user identifier by which said each authentication management area was attached to a meaning for every user was written in, The authentication database which has two or more records constituted by the field where the password sign was written in, and the area field where the sign which shows a success of authentication is written in, The sign which shows a success of authentication is written in the area field of the record which will be applied to that user if a user is attested with reference to this authentication database and it succeeds in a user's authentication. Moreover, an authentication server means to attest by searching preferentially the record with which the sign which shows a success of authentication is written in the area field if an authentication demand is received from a user, The authentication database management system characterized by having a network access server means to connect with this authentication server means and to transmit an authentication demand of a user to said authentication server means.
[Claim 4] In claim 3, each record which constitutes said authentication database It has further the date field where the date which succeeded in authentication is written in. Said authentication server means If a user is attested with reference to said authentication database and it succeeds in a user's authentication, while writing the sign which shows a success of authentication in the area field of the user's record The date which attested to the date field of the record concerning the user is written in. Moreover, the authentication database management system characterized by being a means to attest by searching preferentially the record with which the sign which shows a success of authentication is written in the area field if an authentication demand is received from a user.
[Claim 5] The authentication database management system characterized by preparing the date field where the date which succeeded in authentication is written in instead of said area field in claim 3.
[Claim 6] Said authentication server means is an authentication database management system characterized by being the means which will rewrite the content of the area field and the date field to predetermined initial value, respectively if predetermined time amount passes since the date of said date field in claim 4.
[Claim 7] Said authentication server means is an authentication database management system characterized by being the means which writes in the user identifier uniquely attached to the user identifier field of this added record at the user, writes a predetermined password sign in the password sign field, and writes predetermined initial value in the area field, when a record is newly added to said authentication database in claim 3.
[Claim 8] Said authentication server means is an authentication database management system characterized by being the means which writes in the user identifier uniquely attached to the user identifier field of this added record at the

ser, writes a predetermined password sign in the password sign field, and writes predetermined initial value in a date ield, when a record is newly added to said authentication database in claim 4.

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)ETAILED DESCRIPTION

Detailed Description of the Invention]
0001]
Field of the Invention] This invention divides a network into two or more authentication management area, and relates o the approach and system which install an authentication server for each [these] authentication management area of :very, and manage an authentication database.
0002]
Description of the Prior Art] Generally, when connecting with networks, such as personal computer communications ınd the Internet, through a telephone network etc., a user connects with the access point of every place offered with the)ersonal-computer-communications firm, the Internet provider, etc., and is communicating through this access point.
'0003] In order to check whether you are the user of network normal in that case, an authentication server requires the nput of a password together with a user name of each user (henceforth a user). And this inputted user name is collated vith the authentication database beforehand set up in the network, and if both are in agreement, connection of that user vill be permitted.
'0004] However, in such personal computer communications etc., since the business was developed on a scale of the vhole country, the number of users also has the place which reaches the magnitude millions in many places, ıuthentication of the user at the time of access took time amount, and it had become a problem conventionally how this ıuthentication time amount is shortened.
'0005] Here, a user's authentication in the network in general personal computer communications etc. is explained ısing drawing. Drawing 6 is the explanatory view which expressed networks, such as general personal computer :ommunications, typically. As shown in this drawing, the whole network is divided into five authentication :nanagement area 10, 20, 30, 40, and 50, and authentication servers 11, 21, 31, 41, and 51 are installed in each ıuthentication management area.
[0006] And two or more connection of the network access servers 12, 22, 32, 42, and 52 which function on each ıuthentication server as a router is made, respectively, and each user is connected to an authentication server through :hese network access servers. In addition, each of authentication servers and network access servers may be realized in ıardware, if it may realize by software.
'0007] Now, if the network shown in drawing 6 is applied to the personal computer communication network of national :nagnitude, districts, such as Kanto, a northeast, and Kinki, correspond, respectively and, as for each authentication :nanagement area, one authentication server is installed at a time in each [these] district. And two or more network ıccess servers connected to these authentication servers correspond to the access point installed in the cities, towns and villages in each district, for example, Tokyo, Mitaka, Sendai, Osaka, etc., respectively.
'0008] Therefore, Mitaka-shi, then a user 13 access a user's 13 address in a network through the network access server 12 of Mitaka-shi which is a nearby access point, and it connects with the authentication server 11 which has taken over the user authentication of the Kanto district alone.
[0009] Moreover, although it is natural, authentication will be performed by the authentication server 21 in the authentication management area 20, if the user 13 could also access through the network access server of others which exist in addition to Mitaka-shi, for example, being accessed through the network access server 22. Thus, in the former, the whole network was divided into two or more authentication management area, the authentication server was prepared for every authentication management area, and a user's authentication was performed.
[0010]
[Problem(s) to be Solved by the Invention] However, in the above conventional authentication management methods and systems, in order to enable it to access from any authentication management area, the authentication database

quipped with the data about All Users was installed in each authentication management area. Therefore, record count ecame huge with the increment in a user, and there was a trouble that the retrieval time at the time of authentication tarted.

0011] Moreover, in order to solve such a trouble, there was also the approach of assigning a user for every uthentication management area, and miniaturizing an authentication database, but since the authentication database of ther authentication management area would be referred to when the user applicable to the authentication database nstalled in the authentication management area accessed in such an approach is not registered, the trouble took time mount too was.

0012] Furthermore, since the users registered for every authentication management area differed when a user is ssigned for every authentication management area as mentioned above, when an addition, deletion, etc. of uthentication management area arose, the authentication database in other authentication management area also had to e changed, and there was a problem in maintainability. In the network which modification of such authentication nanagement area produces frequently especially, maintenance of an authentication database was very complicated.

0013] This invention is for solving such a technical problem, and in the network which has two or more authentication nanagement area, even if it seems that authentication time amount can be shortened even if there are many users, and uthentication management area may be changed frequently, it aims at offering the authentication database nanagement approach and authentication database management system which can perform maintenance easily.

0014]

Means for Solving the Problem] In order to attain such an object, the authentication database management approach oncerning this invention If a user accesses to the authentication management area of one among said authentication nanagement area The user who accessed up Norikazu's authentication management area before this access, and ucceeded in authentication is preferentially searched out of the above-mentioned authentication database, and it attests y collating this searched user and the user who did [above-mentioned] access. Thus, even if the number of users of he authentication database management approach which starts this invention by constituting increases, it can be earched in a short time, and maintenance of an authentication database is easy for it.

0015] Moreover, the authentication database management system concerning this invention The field where the user dentifier by which each authentication management area was attached to a meaning for every user was written in, The uthentication database which has two or more records constituted by the field where the password sign was written in, nd the area field where the sign which shows a success of authentication is written in, The sign which shows a success f authentication is written in the area field of the record which will be applied to that user if a user is attested with eference to this authentication database and it succeeds in a user's authentication. Moreover, an authentication server neans to attest by searching preferentially the record with which the sign which shows a success of authentication is written in the area field if an authentication demand is received from a user, It connects with this authentication server neans, and has a network access server means to transmit an authentication demand of a user to the above-mentioned uthentication server means. Thus, even if the number of users of the authentication database management system which starts this invention by constituting increases, it can be searched in a short time, and maintenance of an uthentication database is easy for it.

0016]

Embodiment of the Invention] Next, the gestalt of one operation of this invention is explained using drawing. Drawing is the explanatory view showing the gestalt of one operation of this invention. As shown in this drawing, the uthentication database 1 is constituted by the record 2 of N individual, and each record 2 is constituted by the user ame field where the user name which is a user identifier was written in, the password field in which the password which is a password sign was written, and the area field.

0017] For example, "taro" is written in the record of #2 of drawing 1 as a user, and "ABCDwxyz" is written in it as a assword. And the value "0" is written in the area field. Similarly, the data about a user "jiro" are written in the record f #n.

0018] Thus, one record is prepared to one user, the user name set as a meaning for every user is written in the user ame field of each record, and the password made from the combination of arbitration, such as the alphabet and a figure, is written in a password field. And "0" is written in the area field as initial value, and "1" will be written in if ccessed once.

[0019] Here, the procedure at the time of newly registering a user into an authentication database is explained using drawing. Drawing 4 is the explanatory view showing signs that the user was newly registered in an authentication database. As shown in this drawing, when a user "hanako" is newly registered into the record of #N+1, "KLMstuvW" is written in a password field as a password set as arbitration. And initial value "0" is written in the area field.

0020] Next, the procedure of authentication is explained using drawing. Drawing 5 is a flow chart which shows the uthentication procedure when using the authentication database concerning drawing 1 for the general network oncerning drawing 6 . In addition, although the user 13 of drawing 6 explains taking the case of the procedure which ccesses an authentication server 11 below, it carries out similarly about other authentication servers.
0021] First, in step 100, if the authentication demand from a user 13 is transmitted to an authentication server 11 hrough a network access server 12, an authentication server 11 will start authentication. In step 101, in order to search referentially the user who had already accessed this authentication server 11, an authentication server 11 starts etrieval of the record whose value of the area field in an authentication database is "1." And if there is a corresponding ecord, it will shift to step 102, and if there is nothing, it will shift to step 105.
0022] In step 102, since the record which corresponds in an authentication database was searched, a password is ollated succeedingly. That is, an authentication server 11 collates the entered password and the password of the earched record, and checks whether it is mutually in agreement. And if in agreement, it shifts to step 103, and if not in greement, it will shift to step 106.
0023] In step 103, since it checked that an authentication server 11 was in agreement with that by which the user name nd password which were entered are registered into the authentication database, a success of authentication is notified o a network access server 12. Consequently, connection with a network is permitted and, as for a user 13, access to a etwork is carried out by the usual procedure. In step 104, an authentication server 11 writes the value "1" which shows ccess ending in the area field, and ends an authentication procedure.
0024] On the other hand, in step 105, as for an authentication server 11, the value of the area field searches the record f "0." And if there is a corresponding record, it will shift to step 102 and collating of a password etc. will be performed ike the above. Moreover, if there is no corresponding record, it will shift to step 106.
0025] In step 106, a password is not in agreement, the user who accessed into the authentication database is not egistered, or it writes, and the authentication access server 11 notifies failure in authentication to a network access erver 12. Consequently, a user 13 is denied connection with a network.
0026] Next, the gestalt of operation of others of this invention is explained. Drawing 2 is the explanatory view howing the gestalt of operation of others of this invention. It differs in that the date field is prepared instead of being he area field although a strong resemblance to the configuration of drawing 1 is born as shown in this drawing.
0027] That is, if the date (a date or time of day) which attested is written in at the time of a success of authentication, he same effectiveness as the case of drawing 1 can be acquired by searching preferentially the record with which the ate was written in at the time of retrieval.
0028] Moreover, in the case of drawing 2 , if the date currently written in the date field is supervised periodically and fixed time amount passes since the date, the date field of a user with few counts of access will be initialized by ewriting a date field to initial value. Consequently, the user who accesses in the authentication management area 10 frequently can be preferentially searched now, and authentication time amount can be further shortened rather than the ase of drawing 1 .
0029] Furthermore, since the authentication procedure when using the authentication database of drawing 2 is almost he same as that of the case of drawing 1 , the flow chart of drawing 5 is followed in general. However, the points which write in the date which attested to the date field differ instead of writing in the area field in step 104. Moreover, what the authentication database 11 supervised the date of a date field periodically, went back from current time of day independently with authentication procedure, and carried out fixed time amount progress rewrites the value of the date field to 00. predetermined initial value, "00.00". [for example,]
0030] Drawing 3 is the explanatory view showing the gestalt of other operations in the pan of this invention. As shown in this drawing, this combined the configuration of drawing 1 , and the configuration of drawing 2 , and is equipped with the area field and a date field. Therefore, the step which writes in the date with which the authentication procedure of the authentication database of drawing 3 attested after step 104 in the date field according to the flow chart of drawing 5 R> 5 in general is newly added.
0031]
[Effect of the Invention] As explained above, since the authentication database is constituted by all users' authentication data in all authentication management area, even if authentication management area is changed, the authentication database before it can be used for this invention as it is. Therefore, this invention can raise the maintainability of an authentication database substantially. Moreover, this invention can make retrieval accelerate by limiting the record searched using the area field etc., although the authentication database which registered the user in all area for every authentication management area is installed.

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ECHNICAL FIELD

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ECHNICAL PROBLEM

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0012] Furthermore, since the users registered for every authentication management area differed when a user is ssigned for every authentication management area as mentioned above, when an addition, deletion, etc. of uthentication management area arose, the authentication database in other authentication management area also had to e changed, and there was a problem in maintainability. In the network which modification of such authentication nanagement area produces frequently especially, maintenance of an authentication database was very complicated.
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[0021] First, in step 100, if the authentication demand from a user 13 is transmitted to an authentication server 11 through a network access server 12, an authentication server 11 will start authentication. In step 101, in order to search

referentially the user who had already accessed this authentication server 11, an authentication server 11 starts etrieval of the record whose value of the area field in an authentication database is "1." And if there is a corresponding ecord, it will shift to step 102, and if there is nothing, it will shift to step 105.

0022] In step 102, since the record which corresponds in an authentication database was searched, a password is ollated succeedingly. That is, an authentication server 11 collates the entered password and the password of the earched record, and checks whether it is mutually in agreement. And if in agreement, it shifts to step 103, and if not in greement, it will shift to step 106.

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0028] Moreover, in the case of drawing 2 , if the date currently written in the date field is supervised periodically and ixed time amount passes since the date, the date field of a user with few counts of access will be initialized by ewriting a date field to initial value. Consequently, the user who accesses in the authentication management area 10 frequently can be preferentially searched now, and authentication time amount can be further shortened rather than the ase of drawing 1 .

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0030] Drawing 3 is the explanatory view showing the gestalt of other operations in the pan of this invention. As shown in this drawing, this combined the configuration of drawing 1 , and the configuration of drawing 2 , and is equipped with the area field and a date field. Therefore, the step which writes in the date with which the authentication procedure of the authentication database of drawing 3 attested after step 104 in the date field according to the flow chart of drawing 5 R> 5 in general is newly added.

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DESCRIPTION OF DRAWINGS

Brief Description of the Drawings]
Drawing 1] It is the explanatory view showing the gestalt of one operation of this invention.
Drawing 2] It is the explanatory view showing the gestalt of operation of others of this invention.
Drawing 3] It is the explanatory view showing the gestalt of operation of others of this invention.
Drawing 4] It is the explanatory view showing signs that the user was newly registered in the authentication database concerning drawing 1 .
Drawing 5] It is the flow chart which shows the authentication procedure concerning this invention.
Drawing 6] It is the explanatory view showing the network which has two or more authentication management area.
Description of Notations]
[-- An authentication server, 12 22, 32, 42 52 / -- A network access server, 13 / -- User.] -- An authentication database, 2 -- A record, 10, 20, 30, 40, 50 -- Authentication management area, 11, 21, 31, 41, 51

Translation done.]

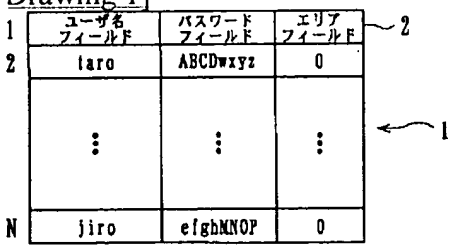
NOTICES *

PO and NCIPI are not responsible for any
amages caused by the use of this translation.

.This document has been translated by computer. So the translation may not reflect the original precisely.
.**** shows the word which can not be translated.
.In the drawings, any words are not translated.

DRAWINGS

Drawing 1]



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2	taro	ABCDwxyz	0
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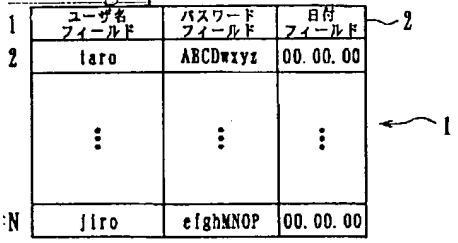
N	jiro	efghMNOP	0

Drawing 2]



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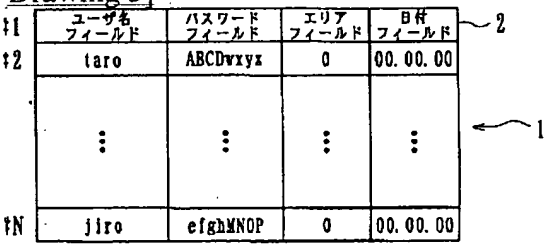
2	taro	ABCDwxyz	00. 00. 00
	⋮	⋮	⋮ ←1
N	jiro	efghMNOP	00. 00. 00

Drawing 3]



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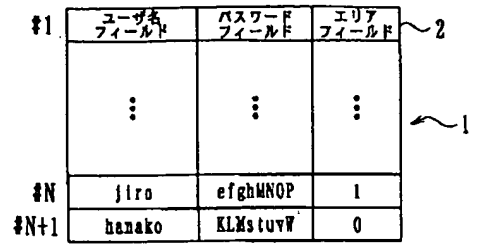
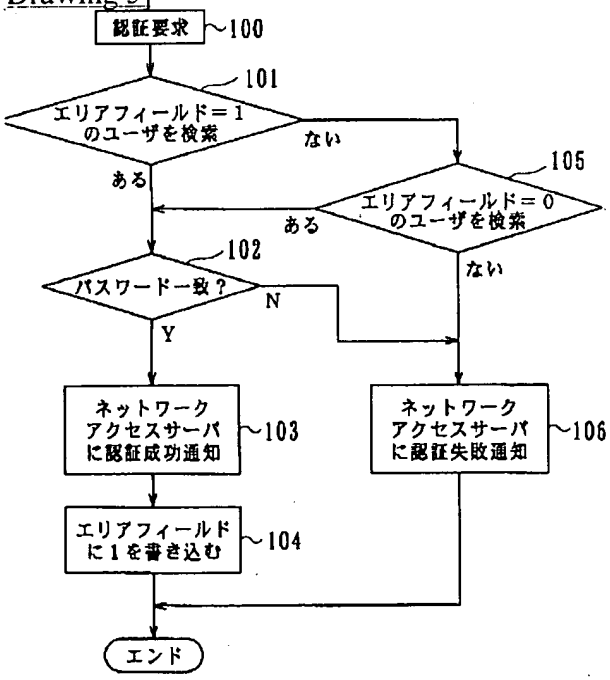
2	taro	ABCDwxyz	0	00. 00. 00
	⋮	⋮	⋮	⋮ ←1
N	jiro	efghMNOP	0	00. 00. 00

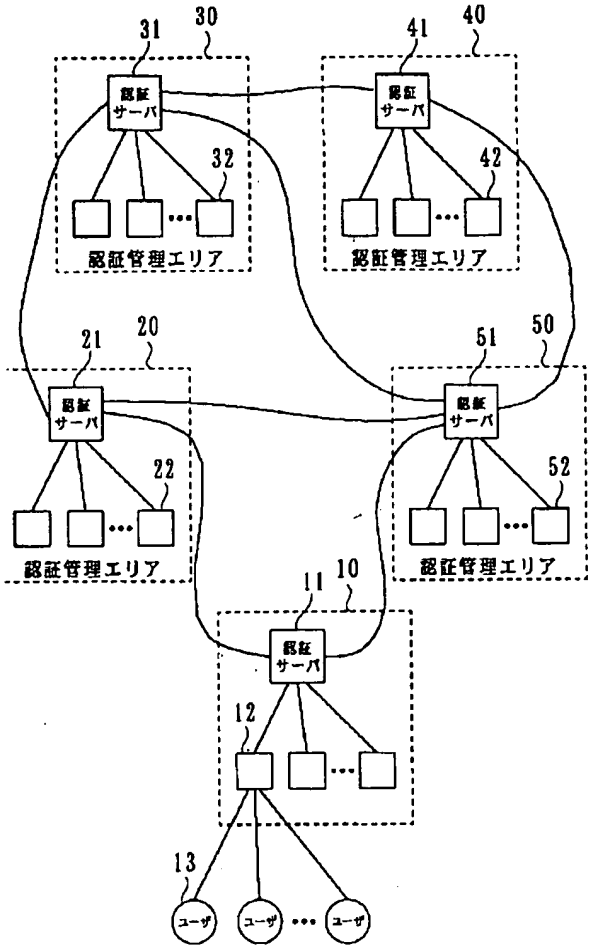
Drawing 4]



Drawing 5]



Drawing 6]



[Translation done.]